

Long-Term Ambient Air Quality and Atmospheric Deposition Monitoring Programs

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Emissions that contribute to acid deposition have been reduced substantially since the passage of the 1990 Clean Air Act Amendments (CAAA). Title IV of the CAAA sought to reduce sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emissions from fossil fuel-burning electric utility plants. In order to provide regulatory accountability for such programs, long-term air quality monitoring networks have been established to monitor air quality patterns and trends as a result of the mandated emission reductions.

To assess air quality and deposition changes on a national scale, the Environmental Protection Agency (EPA) established the Clean Air Status and Trends Network (CASTNET) to assess the environmental effectiveness of the Acid Rain Program through comprehensive, long-term, and coordinated air pollutant monitoring. The CASTNET provides information on the spatial patterns and trends in air quality and deposition valuable for regulatory accountability of national and regional air pollution control programs. CASTNET sites collect data on the dry deposition component of total acid deposition (sum of wet and dry deposition), ground-level ozone, and other atmospheric pollutants from rural, regionally representative monitoring sites. The U.S. EPA partners with states, tribes, universities, and other agencies to operate CASTNET sites. In addition, the U.S. EPA has partnered with other networks, such as the National Atmospheric Deposition Program's National Trends Network (NADP/NTN) and the Canadian Air and Precipitation Monitoring Network (CAPMoN). In conjunction with the CASTNET, the NADP/NTN, which measures wet deposition, provides for a regional and nation-wide assessment of improvements in air quality and acid deposition. The partnership with the CAPMoN, which measures deposition trends in Canada, provides the means for conducting an international assessment of acid deposition for the collaborative efforts between the U.S. and Canada in accordance with the U.S.-Canada Air Quality Agreement.

In an effort to remain effective in evaluating regional air quality, the U.S. EPA will be implementing new monitoring equipment at CASTNET sites. This effort has involved and will continue to involve participation from scientists, stakeholders, and regional air planning organizations in order to maximize monitoring objectives.

Information gathered from these and other environmental monitoring networks are critical in determining the effectiveness of national air pollution control efforts by providing a mechanism

for program accountability. Collaboration and partnership with multiple agencies and programs have allowed a better understanding of the problem (i.e. acid deposition) and contribute to the U.S. EPA's ability to assess the results of emission reduction programs. The long-term environmental monitoring networks also provide the essential link between air pollution and ecological effects.